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Alfa Laval inert gas solutions for LNG carriers

Safeguarding LNG transport



Time is money when it comes to transporting liquid natural gas (LNG). Being able to inert the tanks on the voyage to and from dry dock – or to do it on the spot when tank inspections or repair needs arise – is a valuable proposition. Alfa Laval understands the importance of availability, which is why we put so much effort into securing it.

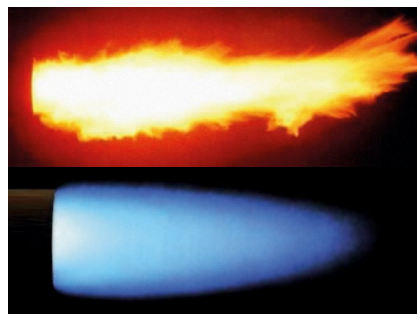
When it comes to inert gas systems, availability is a key focus of our system design. The Alfa Laval Smit LNG system is specifically developed to ensure safety without costly and unnecessary delays, which means you can handle tighter delivery schedules and increasing demand. By offering more capacity for the footprint, the Smit LNG system lets you do the inerting faster and get to the work you profit from.

Completely soot-free

Due to the relatively low investment cost, most larger LNG carriers purchase combustion-based inert gas systems. The gas needs to be not only dry, however, but also free from soot.

This is why the unique Ultramizing® combustion system is at the heart of every Smit LNG system. The Ultramizing system

Conventional, strongly radiating, long oil flame producing soot.



Bluish-transparent oil flame characteristic of the Ultramizing® combustion principle.

ensures inert gas with low oxygen levels, low NOx emissions and no soot, thanks to special steam-atomizing and vaporizing burners.

Quality throughout

Quality is also assured by the Smit LNG sprayer systems, which are designed to avoid the creation of salt from evaporating water. The dryers are laid out in such a way that the produced inert gas has a stable temperature and a dew point that is always below what is requested.

Modular and smaller

The Smit LNG system brings your LNG carrier all the benefits of modular configuration – including a considerably reduced footprint. You pay only for the components you need, achieving a smaller system at a lower cost. The horizontal installation makes it easy to perform inspection and maintenance.

Quick, easy touch control

Alfa Laval Touch Control is an integral part of the Smit LNG system, providing a complete graphical overview and quick access to functions and data. Any aspect of the system can be reached in just two touches of the screen.



To ensure availability, two touchscreens are delivered in a redundant solution: one on the main control panel, the other on the dryer. Both have full options. Likewise, the Smit LNG system is equipped with traditional physical buttons next to the touchscreens.

Alfa Laval Touch Control opens the door to future possibilities of remote monitoring. This will allow Alfa Laval to improve service over time, resulting in lower maintenance costs and still greater availability.

The Alfa Laval Smit LNG inert gas system

As the market leader in inert gas systems, Alfa Laval has provided them to over 400 LNG carriers in the past 40 years. In the modular Smit LNG System, those decades of experience have been consolidated into a truly streamlined solution.



Design

Combustion + drying

Capacity range

3,000 – 25,000 m³/hr

Pressure

0.1 – 0.4 bar(g)

Fuel Type

DMA, DMB, DMZ

Typical dew point

-45°C after expansion to atmospheric

Typical gas composition

Oxygen	0.5 – 1.0 vol%
Carbon-dioxide	approx. 14 vol%
Carbon-oxide	max 100 ppm
Sulphur-oxides	max 10 ppm
Nitrogen	balance
Soot	0 (= complete absence)

Why choose Alfa Laval?

Alfa Laval is the standard-setter and market leader, having spent decades optimizing cargo safety under the Smit name. You get the highest reliability, both from our inert gas systems and from the organization that supports them.

- Over 50 years of experience with inert gas systems
- Highest material and component quality
- Worldwide access to service and spares
- 24/7 customer assistance hotline
- Service engineers who can be anywhere in the world within 24 hours
- Shipping of nearly any part without delay
- In-house and onsite operator training



Alfa Laval inert gas solutions for LPG carriers

Protecting efficiency and product



Time is money when it comes to transporting liquefied petroleum gas (LPG). Being able to inert the tanks on the voyage to and from dry dock – or to do it on the spot when tank inspections or repair needs arise – is a valuable proposition. Alfa Laval understands the importance of availability, which is why we put so much effort into securing it.

When it comes to inert gas systems, availability is a key focus of our system design. The Alfa Laval Smit LPG system is specifically developed to ensure safety without costly and unnecessary delays, which means you can handle tighter delivery schedules and increasing demand. By offering more capacity for the footprint, the Smit LPG system lets you do the inerting faster and get to the work you profit from.

A compact match for your needs

Regardless whether your product is refrigerated or pressurized, the Smit LPG system can be fully adapted to your

vessel's requirements. Oxygen level, pressure, dew point and more can be optimized to meet your needs.

At the same time, the modular configuration of the Smit LPG system means a considerably reduced footprint. You pay only for the components you need, achieving a smaller system at a lower cost. The horizontal installation makes it easy to perform inspection and maintenance.

Completely soot-free

Due to the relatively low investment cost, most larger LPG carriers purchase combustion-based inert gas systems. The gas needs to be not only dry, however, but also free from soot. Maintaining product quality is especially important for LPG, since it often serves as a base for plastics, medicines and other specialized commodities.

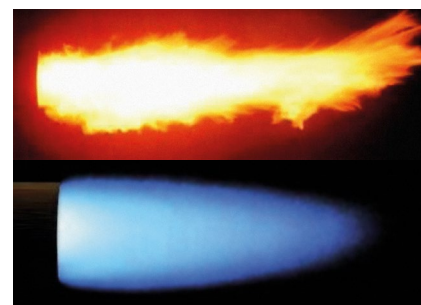
This is why the unique Ultramizing® combustion system is at the heart of every Smit LPG system. The Ultramizing

system ensures inert gas with low oxygen levels, low NOX emissions and no soot, thanks to special steam-atomizing and vaporizing burners.

Quality throughout

Quality is also assured by the Smit LPG sprayer systems, which are designed to avoid the creation of salt crystals from evaporating water. The dryers are laid out in such a way that the produced inert gas has a stable temperature and a dew point that is always below what is requested.

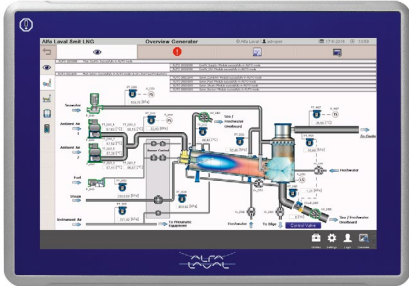
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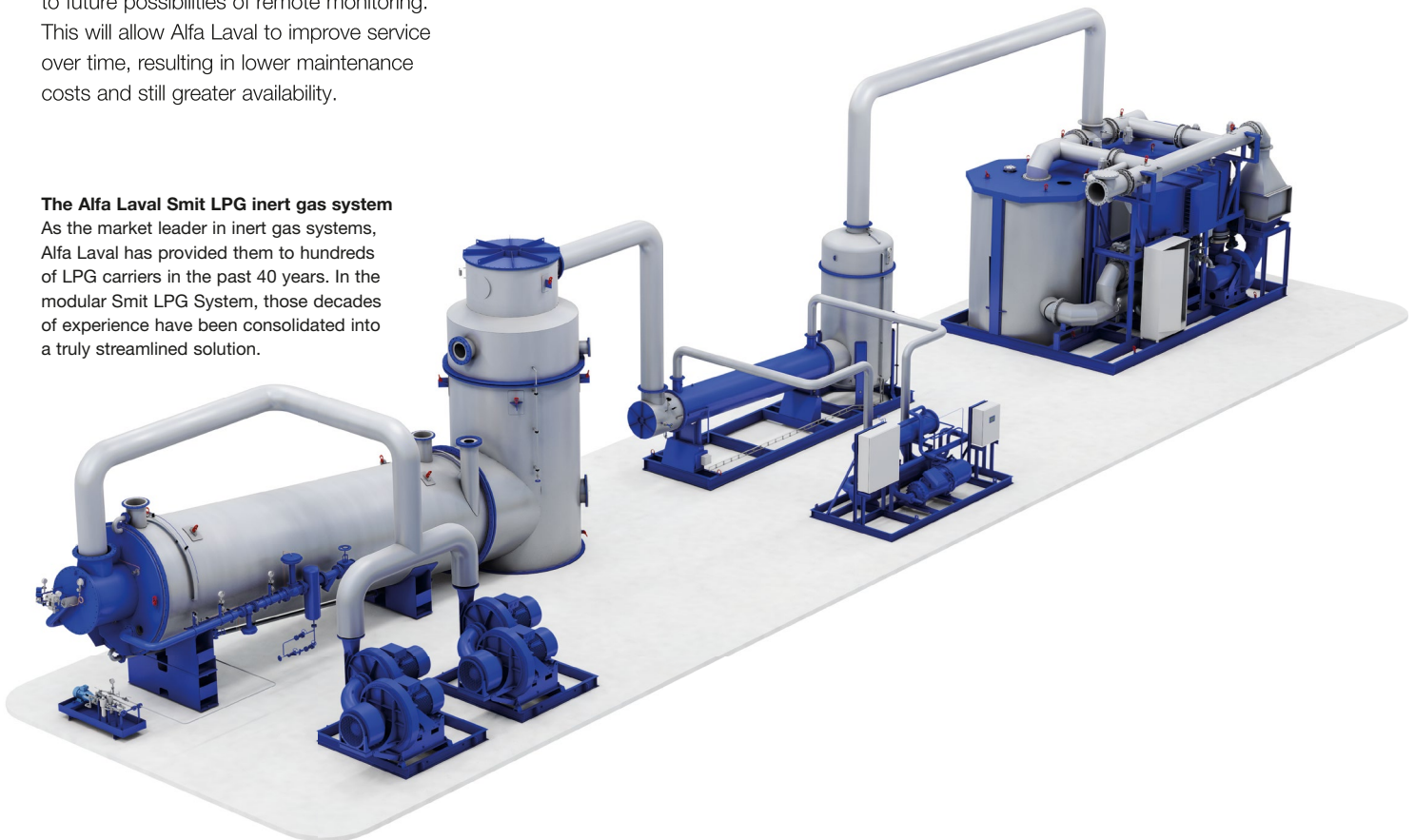


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The Alfa Laval Smit LPG inert gas system

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Design

Combustion + drying

Capacity range

3,000 – 25,000 m³/hr

Pressure

0.3 – 0.4 bar(g)

Fuel Type

DMA, DMB, DMZ

Typical dew point

-45°C after expansion to atmospheric

Typical gas composition

Oxygen	0.5 – 1.0 vol%
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- Shipping of nearly any part without delay
- In-house operator training

Smit Gas Combustion

Smit Gas FU - это генератор насыщенного инертного газа низкого давления компании Альфа Лаваль, который производит инертный газ за счет сжигания жидкого топлива в камере с регулируемой подачей воздуха.



Генераторы инертного газа Smit Gas используются обычно на химовозах и продуктововах. Генераторы производят инертный газ за счет сжигания жидкого топлива в воздушной среде.

Для контроля процесса предусмотрен специальный анализатор кислорода, для непрямого охлаждения используется морская вода. Уникальная система Ultramizing гарантирует полноту сгорания без образования сажи даже при частичных нагрузках.

На втором этапе в специально разработанной системе распыления и охлаждения выполняется доохлаждение и очистка от двуокиси серы.

Области применения

Химовозы

Продуктововах

Газовозы СПГ

Газовозы СНГ

жидкого топлива в камере с регулируемой подачей воздуха. Во многих областях применения допустимое содержание кислорода составляет 0,5 % или даже 0,1 % при точке росы $-45\text{ }^{\circ}\text{C}$, а иногда даже ниже ($-65\text{ }^{\circ}\text{C}$). При этом центральным элементом системы является горелка, так как полное отсутствие сажи в инертном газе имеет первостепенное значение. Для этой цели используется система сжигания Ultramizing.

На выходе из генератора газ имеет нужный состав, но он на 100 % насыщен водой и должен быть осушен. Осушение выполняется в два этапа. На первом этапе охладитель с хладагентом снижает температуру газа до $5\text{ }^{\circ}\text{C}$, в результате значительная часть воды конденсируется.

На втором этапе инертный газ дополнительно осушается в осушителе двухкорпусного типа, в котором используется активированный алюминий или адсорбент. Весь процесс протекает под давлением примерно 0,3 бар (изб.).

Генераторы инертного газа Smit Gas FU, работающие на жидком топливе, находят применение, главным образом, на химовозах и продуктововах.



Стандартный комплект поставки. На рисунке представлен стандартный генератор инертного газа (типа FU) с воздушными вентиляторами, топливными насосами, палубным гидрозатвором и прерывателем давления/вакуума.

Технические характеристики

Объем: 1,000-20,000 м³

Принцип действия: Сжигание

Давление: 0.15 бар (изб.)

Типичное содержание кислорода: 2-4%

Тип топлива: DMB, DMC, горючий газ

Распыление топлива: воздушное

Точка росы: сухой насыщенный газ

Рекомендуется для следующих типов судов: продуктовоы, нефтеналивные танкеры, плавучие системы нефтедобычи

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